

AMENDMENTS TO THE CLAIMS

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Claim 1 (previously presented): An active pixel sensor device, comprising:
an array of pixels, arranged in logical units, wherein each pixel comprises a
photosensor element, an in-pixel buffer element, and an in-pixel selector element; and
a plurality of analog-to-digital converters, formed on the same substrate as said pixel
sensor array, and each associated with N logical units of the pixel sensor array, each of
said N logical units having including a plurality of pixels,

wherein

each analog-to-digital converter includes an ADC portion which receives an
analog signal from one of said pixel sensors of an associated logical unit when a
selector element associated with said one pixel is enabled, and converts said
analog signal to a converted digital value indicating the output signal, and said
ADC portion stores said converted digital value into one of a plurality of
associated storage elements; and N is at least two.

Claim 2 (original): A sensor as in claim 1, wherein said logical units are lines of the
array including either columns of the array or rows of the array.

Claim 3 (original): A device as in claim 2, wherein said analog-to-digital converters are
associated with at least two adjacent lines of the array.

Claim 4 (currently amended): A device as in claim 3, further comprising a readout
controller, controlling readout of information from the photosensor elements, by
controlling said analog-to-digital converters to each convert information from a first
line of the array, to store said information from the first line of the array in one of said

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plurality of associated unit storage elements, then to read out a second line of the array, and store ~~said~~ information from said second line of the array in another one ~~the other~~ of said plurality of associated unit storage elements, and then to read out the information from all of said plurality of associated unit storage elements in a desired order.

Claim 5 (previously presented): A method of operating a pixel sensor array, comprising:

obtaining a pixel sensor array of photosensitive elements, each having a photosensitive element in a pixel, a buffer in said pixel associated with said photosensitive element, and a selector transistor in said pixel which is enabled to allow a signal from said pixel to pass, and disabled to block the signal from passing;

connecting a plurality of said outputs of said selector transistors to one another, to form a plurality of logical units, each logical unit formed by a plurality of said output transistors which are connected to one another;

receiving, in a plurality of A/D converter units, a respective plurality of signals from a respective plurality of first logical units, and A/D converting said respective plurality of signals into a respective plurality of converted digital values and storing said respective plurality of converted digital values information in a respective plurality of first storage units;

receiving, in said plurality of A/D converter units, a respective of signals from a respective plurality of second logical units, adjacent to said first logical units, and A/D converting said respective plurality of signals into a respective plurality of converted digital values and storing said respective plurality of converted digital values in a respective plurality of second storage units; and

reading out said information from said A/D conversion unit in a different order than an order in which the information was converted.

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Claim 6 (original): A method as in claim 5, wherein said different order is in a serial order.

Claim 7 (previously presented): A method as in claim 5, wherein said units are linear units which are one of rows and columns, and said different order include a first different order which skips lines between conversions, and a second different order which is a complete order.

Claim 8 (previously presented): The device of claim 1, wherein each pixel is a CMOS pixel.
